REMARKS

In the Office Action dated October 14, 2004, a typographical error in claim 12 was noted, which has been corrected.

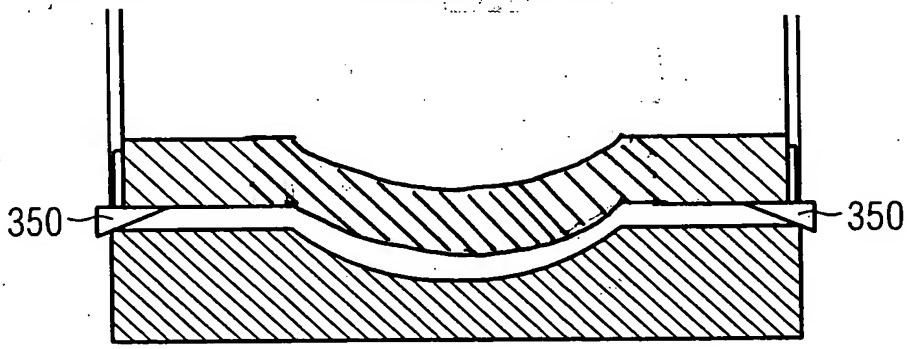
Claims 1-8 were provisionally rejected on the basis of double patenting over claims 1, 2, 23 and 24 of co-pending application Serial No. 10.678,808 (Schuster). The Examiner stated that claim 1 of the Schuster co-pending application discloses all of the elements of claim 1 of the present application, with the exception of the supporting arrangement for the middle region of the gradient coil system. The Examiner relied on the language in claim 24 of the co-pending Schuster application as describing such a supporting arrangement.

This rejection is respectfully traversed for the following reasons.

First, as the name implies, a provisional "double patenting" rejection is for the purpose of preventing an applicant or an assignee from obtaining two patents that *claim* (i.e. patent) the same subject matter. This is why the focus of a double patenting rejection, provisional or otherwise, must be on the language of the claims of the applications in question. Therefore, as an initial observation, Applicants are unable to understand the Examiner's legal justification for relying on a combination of claim 1 and claim 24 of the Schuster co-pending application as a basis for a double patenting rejection of claim 1 of the present application. Claim 24 of the Schuster co-pending application does not depend from claim 1 thereof, but instead depends from claim 23. A combination of claims 1 and 24 in the co-pending Schuster application was *not* claimed therein. Applicants therefore respectfully submit it is impermissible, as a matter of law, for the Examiner to formulate a double patenting

rejection based on subject matter that is not *clamed* in the Schuster co-pending application.

Since reliance on a combination of claims 1 and 24 in the Schuster co-pending application formed the basis for the double patenting rejection of independent claim 1 of the present application, it was also relied on as the underlying basis for the double patenting rejection of claims 2-9 depending from claim 1 of the present application, and therefore Applicants respectfully submit the double patenting rejection of all of claims 1-9 of the present application is incorrect as a matter of law. Moreover, Applicants do not agree, from a technical and factual point of view, that the subject matter of claim 24 of the co-pending Schuster application discloses or claims a "supporting arrangement" for the gradient coil system as set forth in claim 1 of the present application. Claim 24 of the co-pending Schuster application merely states that the cavity in the central region of the magnetic resonance scanner is barrel-shaped, and that the gradient coil system, in this central region, conforms to that barrel-shape. Merely stating that one element conforms in shape to another does not even require that those elements touch each other, much less provide any type of mechanical support. Using the bottom portion of Figure 3 of the co-pending Schuster application, the language of claim 24 is simply intended to cover a variation as shown below, wherein the gradient coil system conforms in shape to the barrel-shaped cavity.



In view of the complete absence of any supporting structure in this central region described anywhere in the co-pending Schuster application, and in view of the wedges 350 that are clearly intended to maintain a separation between the interior surface of the scanner (main magnet) shell and the gradient coil system, there is no reason to infer or assume that such a "supporting arrangement" would be inherent, or even necessary, in the subject matter of claim 24 of the co-pending Schuster application.

Claims 1, 2, 6, 8-12 and 16 were rejected under 35 U.S.C. §102(b) as being anticipated by Sellers et al. This rejection is respectfully traversed for the following reasons.

In substantiating this rejection, the Examiner stated that the gradient coil system disclosed in the Sellers et al. reference has a middle region, which the Examiner defined as the space between the components 12, 16 and 40 in Figure 4. The Examiner also stated that in the Sellers et al. reference, this middle region has a reduced mechanical stiffness compared to the edge regions. For this purpose, the Examiner cited Figure 4, and column 2, lines 22 - 25, column 4, lines 5 - 61, and column 6, lines 58 through column 7, line 4 of the Sellers et al. reference. Applicants do not agree that these portions of the Sellers et al. substantiate the Examiner's statement that Sellers et al. gradient coil system has a middle region having a reduced mechanical thickness compared to the edge regions.

First, there is no specific delineation of a "middle region" and "edge regions" of the gradient coil system in the Sellers et al. reference, because such a separation or demarcation is irrelevant to the structure disclosed in the Sellers et al. reference, and the functioning thereof. Nevertheless, Applicants acknowledge that any cylindrical

arrangement can be imaginarily divided into a middle region and edge regions. If such an imaginary delineation is made in the embodiment of Figure 4 of the Sellers et al. reference, it is clear that the edge regions, rather than the middle region, exhibit a reduced mechanical stiffness, since it is the edge regions that are tapered, and therefore somewhat thinner than the middle region, in order to accommodate the wedges 44. Therefore, the embodiment of Figure 4 of the Sellers et al. reference describes exactly the opposite situation of the language of claim 1, which requires the middle region of the gradient coil system to have a reduced mechanical stiffness compared to the edge regions.

The Examiner relied on the embodiment of Figure 3 of the Sellers et al. reference as showing a supporting arrangement for the middle region of the gradient coil system, however, in the embodiment of Figure 3 of Sellers et al., the gradient coil system is completely uniform along its longitudinal axis, and therefore does not have any region that exhibits a reduced mechanical stiffness with regard to other regions. If the embodiment shown in Figure 3 of Sellers et al. can be imagined without any of the wedges 40 or 42 being present, the radiant coil system 14 would exhibit a constant, uniform spacing from the surface 12 of the magnet assembly 10 along the entirety of its longitudinal axis. In view of this uniform, symmetrical structure, even though the wedges 42 do overlap in a central portion of the embodiment shown in Figure 3, they are not, at that central portion, supporting a region of the gradient coil system having a reduced mechanical thickness compared to the edge regions, because in the embodiment of Figure 3 of Sellers et al. the gradient coil system is completely uniform and does not have any regions of reduced mechanical stiffness.

The Sellers et al. reference, therefore, does not disclose all of the elements of claim 1 as arranged and operating in that claim, and therefore does not anticipate claim 1. For the same reasons, the Sellers et al. reference does not anticipate any of claims 2, 6, 8-12 or 16, which add further structure to the novel combination of claim 1.

Claims 1-8, 11, 12 and 15 also were rejected under 35 U.S.C. §102(e) as being anticipated by Minas. This rejection also is respectfully traversed, for the following reasons.

In substantiating the aforementioned rejection, the Examiner stated that the gradient coil system in the Minas reference has a middle region, which the Examiner defined as being designated as represented by middle gradient ring components 30 and 40 in Figure 3, and edge regions, which the Examiner stated correspond to the edge components 30, 40 of Figure 3. First, it is not understood how the Examiner can define the same ring components (namely the ring components 30 and 40) as being both in the middle region and in the edge regions. More importantly, however, the drawings shown in the Minas reference show *only* an edge region of the overall scanner into which the patient is introduced. The right side of each of Figures 3, 4 and 5 in the Minas reference represents the face of the scanner, i.e., the exterior side or wall thereof. The dot-dash line at the left side of each of Figures 3, 4 and 5 is merely a drawing convention to indicate that more structure exists to the left of the dot-dash line, but is not being shown in the drawings. If the scanner disclosed in the Minas reference is considered to have a "middle region," this "middle region" would be completely to the left of the dot-dash line in Figures 3, 4 and 5, and therefore the

structure of such a "middle region" in the Minas reference is not known (i.e., it is not disclosed.

It would therefore be inconsistent with the disclosure of Minas to arbitrarily divide the portion of the scanner shown in Figures 3, 4 and 5 thereof, which shows only an edge region of the gradient coil system, into regions that allegedly correspond to the "middle region" and "edge regions" of the gradient coil system of claim 1 of the present application. The Examiner's arbitrary division of the structure shown in the Minas reference into a "middle region" and "edge regions" is actually a division into a "middle region of an edge region of the gradient coil system" and "edge regions of an edge region of the gradient coil system." These arbitrary divisions do not conform to the language of claim 1 of the present application.

Moreover, even if the Examiner's arbitrary regional division is accepted, the regions still do not exhibit an interrelationship conforming to the language of claim 1 of the present application.

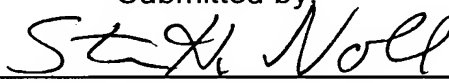
The gradient coil system disclosed in Minas reference is coupled to a boundary surface of the cavity of the scanner by gradient coupling rings 40, which have spaces between neighboring rings 40. These coupling rings 40 are aligned with further coupling rings 30 that fix the gradient coil assembly relative to the cryostat 22. (Minas, column 4, lines 9-18). The spaces 31 between the rings 30 are aligned with the spaces 41 between the rings 40, and are stated to be isolated from each other and closed off axially from the ambient environment (column 4, lines 42-45). If these spaces are considered to be regions of reduced mechanical stiffness allegedly corresponding to the "middle region" of claim 1 of the present application, there clearly is no supporting arrangement for those openings or the surrounding

structure to support the (alleged) "middle region" against the boundary surface. This is not only because the coupling rings 30 and 40 are axially and radially aligned, but also because the purpose of this structure in the Minas reference is, as noted above, to isolate the spaces 32 and 41 from each other and to prevent the propagation of noise between the gradient coil assembly 28 and the cryostat vessel 22. If those regions were supported against the boundary surface (i.e., against the cryostat vessel 22) this would destroy the intended operation of the Minas reference.

The Minas reference, therefore, does not disclose or suggest all of the elements of independent claim 1 of the present application, and therefore does not anticipate claim 1. Claims 2-8, 11, 12 and 15 add further structure to the novel combination of claim 1, and therefore are not anticipated by Minas for the same reasons discussed above in connection with claim 1.

All claims of the application are therefore submitted to be in condition for allowance, and early reconsideration of the application is respectfully requested.

Submitted by,



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